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ABSTRACT

A study was conducted to identify the capacity of existing data collections to provide nationally comparable information on cross-sectoral dimensions of student enrollment in post-compulsory education and training in Australia. Cross-sectoral dimensions are considered to be student movement from schooling to vocational education and training (VET), from adult community education to vocational education and training, from higher education to vocational education and training and vice versa, and from schools, vocational education, and training and higher education to adult community education (lifelong learning). The study found the following: (1) the national Schools' Statistics Collection is of limited usefulness in monitoring post-compulsory participation or student transitions to further education and training because it is not based on unit-level student records; (2) the National VET Provider Collection, can only be used in a limited way to map cross-sectoral movement of students directly from the data fields; (3) the Higher Education Statistics Collection provides considerable detail about the prior educational experience of students, which assists in monitoring cross-sectoral movement, but the information on past education and training of students is collected at a general level without reference to sector; and (4) the adult community education sector is a significant provider of education and training at the local community level, but fundamental issues regarding reporting standards have not been resolved and the National VET Provider Collection captures only about half of all ACE provision.

Modifications are proposed for the data reporting systems. (Contains 16 references.) (KC)

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Mapping and tracking

Data collections

for **monitoring post-compulsory
education and training**

Richard Teese

Louise Watson



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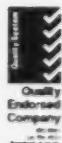
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List of abbreviations

AAACE	Australian Association for Adult and Community Education
ABS	Australian Bureau of Statistics
ACE	adult community education
ACFE Board	Adult, Community and Further Education Board (Vic)
ALA	Adult Learning Australia
AMES	Adult Migrant English Service
ANTA	Australian National Training Authority
AQF	Australian Qualifications Framework
AV-CC	Australian Vice-Chancellors' Committee
AVETMISS	Australian Vocational Education and Training Management Information Statistical Standard
BACE	Board of Adult and Community Education (NSW)
DETYA	Department of Education, Training and Youth Affairs
EFTSU	equivalent full-time student unit
FTE	full-time equivalent
MCEETYA	Ministerial Council on Education, Employment, Training and Youth Affairs
NCVER	National Centre for Vocational Education Research
NCETS	National Centre for Education and Training Statistics
NETSU	National Education and Training Statistics Unit
NSSC	National Schools Statistics Collection
NTU	Northern Territory University
RTO	registered training organisation
TAFE	Technical and further education
TOSS	Taskforce on School Statistics
U3A	University of the Third Age
VET	vocational education and training
WEA	Workers' Educational Association of South Australia

Preface

This research project was undertaken by the Lifelong Learning Network, a national policy research centre on post-compulsory education and training at the University of Canberra. It is the culmination of a project commissioned by the National Centre for Vocational Education Research (NCVER) in 1999 to investigate the usefulness of institutional data collections for monitoring student pathways between the sectors of:

- schools
- vocational education and training (VET)
- higher education
- adult community education (ACE)

The project was initiated by a group of researchers who analyse data from institutional collections in the various sectors of education and training. The researchers were interested in identifying ways in which the data collections could be enhanced to improve their usefulness to researchers and policy-makers. To do this, the research team initiated discussions with members of the policy and research communities in a range of forums. Members of the research team presented a discussion paper on the limitations of institutional data collections to a Lifelong Learning Network conference at the University of Canberra in August 1999. This paper sparked ongoing debate between researchers, policy-makers and the research team, and more information on researchers' experiences was gathered over the course of the year. In October 2000, the research team circulated a consultation paper identifying the limitations of the existing data collections for monitoring students' transitions. The paper proposed a number of modifications that could improve the usefulness of the data collections for this purpose.

The consultation paper was sent to over 100 people in government, non-government agencies, research institutions and education providers across the four sectors. The authors sought feedback on the usefulness of the proposed modifications, their technical feasibility, and any constraints on achieving these improvements, as well as suggestions for additional ways to improve the comparability of the data collections. The authors received 22 responses to the consultation paper from people in every sector of Australian education and training. The respondents are listed in appendix B. All but two of the respondents supported the basic aim of the project. Most respondents raised issues of resources, cost-effectiveness and political constraints. A few factual inaccuracies in the text were pointed out. There was a high degree of consistency among respondents in identifying issues for further investigation. These are summarised in the final chapter of the report.

The project team is aware that the main purpose of institutional data collections is to gather data for providers and their system authorities. The fact that institutional data can be used for research is a valuable by-product of the current system. Assuming that research on student pathways is useful to policy-makers, administrative agencies should be concerned to facilitate the production of high-quality research by collecting high-quality data. The purpose of this project was to identify areas in which the current data collections could be enhanced—from the perspective of researchers who use the data. The project team endeavoured to make recommendations that were inexpensive and technically feasible, while flagging more substantial issues for consideration in the long term.

The research team recognises that the value of making changes to the existing data collections must be weighed against administrative costs. A major concern is the cost of making the current system of data collection more complex—particularly in the vocational education sector, where more complex enrolment procedures could result in lower response rates from students. Furthermore, if the education provider cannot appreciate the value of collecting certain types of data, the institution's commitment to obtaining accurate and complete information is likely to be weak.

There are many constraints that could prevent data collection agencies from implementing the recommendations of this report. Operational issues are discussed in the various chapters on each sector. We have refrained from highlighting the possible political obstacles to implementing some of our recommendations as we think such a discussion would be premature. It is however important to acknowledge that the four sectors of schools, vocational education, higher education and adult community education each operate under different forms of governance within Australia's federal system. This provides ample scope for legal, bureaucratic or jurisdictional disputes to get in the way of any reform. However, it is also important to acknowledge the many mechanisms that promote constructive dialogue between the various stakeholders in Australia's education and training system. The Ministerial Council on Education, Training and Youth Affairs (MCEETYA) and its associated committees and working parties would be the obvious place to discuss the feasibility of implementing the recommendations in this report. The Australian Bureau of Statistics (ABS) is also well placed to take a leading role in discussions about the feasibility of many of our recommendations.

In July 2000, the Australian Bureau of Statistics established a National Centre for Education and Training Statistics (NCETS) to improve the quality and consistency of data on education and training in Australia. Specifically, the Centre is responsible for:

- collecting and disseminating data on all sectors of education and training
- developing the use of standard concepts, definitions and classifications for education and training statistics

Within the centre, a National Education and Training Statistics Unit (NETSU) has been established to provide a cross-sectoral perspective. The unit is working with the relevant MCEETYA taskforces, State and Territory agencies such as boards of studies and several advisory groups to improve the consistency and comparability of national statistics on education and training. It is currently developing a new national framework for Australian education and training statistics.

Several respondents to the consultation paper suggested that the report of this project should be referred to NETSU for consideration with a view to implementation. The authors agree that the National Education and Training Statistics Unit is ideally placed to liaise with key stakeholders—particularly MCEETYA—regarding the findings of this report and to undertake further investigation of long-term issues regarding the quality of administrative data. This report will therefore be referred to NETSU as a contribution to its broader project to improve the consistency and comparability of the data collected on Australian education and training. It will also be referred to other agencies which are responsible for the collection of education and training statistics.

Executive summary

There is an increasing flow of students between the sectors at the post-compulsory level, yet relatively little is known about the educational and employment pathways of students moving between the sectors. Policy-makers and institutional planners need data on cross-sectoral student movement in order to understand changes in the demand for education and training and how best to meet student needs. Some of the cross-sectoral policy issues of interest to researchers are:

- transition from schooling to vocational education and training (equity, transition outcomes from different curriculum streams in school, program articulation, joint delivery, the value of careers education and guidance)
- transition from adult community education to vocational education and training (learning pathways, admission and selection, equity)
- transition from higher education to vocational education and training (the employment value of university courses, evaluating cross-sectoral programs, reducing university wastage by greater instructional use of technical and further education [TAFE])
- transition from vocational education and training to higher education (articulation, credit transfer, seamlessness, access and equity)
- transition from schools, vocational education and training and higher education to adult community education (lifelong learning)

The purpose of the study is to identify the capacity of existing data collections to provide nationally comparable information on these cross-sectoral dimensions of student participation in post-compulsory education and training. The project brief designated the following research questions:

- What data elements in the existing collections provide information relevant to cross-sectoral dimensions of post-compulsory education and training?
- To what extent do these current measures meet the information needs of researchers and policy-makers? What information needs are not able to be adequately met by the current collections?
- What modifications could be made to the existing collections to improve the scope, utility and comparability of data?
- What are the constraints on achieving these improvements?
- What would be the desirable directions for policy and research in the future?

In addressing these questions, the authors of this consultation paper found that the data collections for each sector have some strengths and weaknesses in terms of their potential for tracking cross-sectoral student movement. The authors suggest the following modifications to improve the utility and comparability of the data collections for researchers and policy-makers monitoring student movement between the sectors.

Schools

The National Schools' Statistics Collection (NSSC) is of limited usefulness in monitoring post-compulsory participation or student transitions to further education and training because it is not based on unit-level student records. Although student background characteristics are recorded by schools at the time of enrolment and often aggregated to the system level, these data are not currently reported in the National Schools' Statistics Collection. One way to improve the comparability and utility of the NSSC would be to draw the annual schools census from a unit-level database based on student enrolment records. This approach could also enhance the estimation of Year 12 retention if a student ID number were assigned to secondary school students. If the schools census was compiled from unit-record data, the NSSC would have the same basic structure as the National VET Provider Collection and Higher Education Statistics Collection.

Proposed modifications

The NSSC should:

- draw the annual schools census from a unit-level database based on student enrolment records
- report the level of participation in vocational education and training (VET)-accredited subjects and work experience programs among school students
- assign student ID numbers to secondary students

Vocational education and training

Although the NCVER is undertaking work involving matching clients in different collections in order to track students over time, the National VET Provider Collection, which is based on the Australian VET Management Information Statistics Standard (AVETMISS), can only be used in a limited way to map cross-sectoral movement of students directly from the data fields. This is partly because information on past education and training activity or achievements of students is collected at a general level without reference to sector or provider (or jurisdiction or region). Another reason is non-response of students in completing relevant questions at the time of enrolment. It is likely that the complexity of the information requested under the AVETMIS Standard, while enhancing the data's potential usefulness to researchers, contributes to the high non-response rate on certain data items. The following recommendations therefore need to be considered in terms of their potential impact on student response rates.

Proposed modifications

The National VET Provider Collection should report:

- the name and postcode of the school attended
- the type of school attended (that is, government, Catholic, other non-government)
- the most recent form of education participation by type of course, whether it was award or non-award, complete or incomplete and the type of provider (that is, TAFE institute, community provider, private VET provider, university etc.)
- the highest qualification attempted, the relevant year and the name, postcode and type of provider

NCVER, which is the agency responsible for the National VET Provider Collection should continue to develop strategies to reduce non-response rates by respondents, particularly in reporting prior educational experience.

Higher education

The Higher Education Statistics Collection maintained by the Department of Education, Training and Youth Affairs (DETYA) provides considerable detail about the prior educational experience of students which assists in monitoring cross-sectoral movement, particularly from TAFE institutions to university. However, information on past education and training activity or achievements of students is collected at a general level without reference to sector or provider (or jurisdiction or region). The higher education data collection cannot provide information relevant to cross-sectoral policy issues such as transition to higher education from adult and community education.

Proposed modifications

The Higher Education Statistics Collection should report:

- the name and postcode of the school attended, and the type of school attended (that is, government, catholic, and other non-government)
- details of the most recent educational institution attended, including whether it was a community provider and its postcode address

Adult community education

The adult community education sector is a significant provider of education and training at the local community level. It is important to monitor student movement through adult and community education (ACE) activities to improve our understanding of the role of all forms of education and training in promoting lifelong learning. However it would be premature to discuss the potential for monitoring cross-sectoral movement in regard to the ACE sector until fundamental issues regarding reporting standards are resolved. The National VET Provider Collection has the potential to monitor ACE activity but currently captures only about half of all ACE provision. Where ACE activity is reported through the AVETMIS Standard, the data are characterised by higher rates of non-response than other types of provision.

Proposed modifications

The proposed modifications in relation to ACE are:

- To assist in future efforts to improve the quality of ACE statistics either through institutional collections or surveys, State and Territory education authorities should maintain up-to-date registers of all types of ACE providers within their jurisdiction, according to an agreed national typology.
- The National Training Statistics Committee should investigate ways of making it easier for ACE providers to report information on ACE activity to the National VET Provider Collection while ensuring that a minimum level of information on a student's prior educational experience is sought.

Future directions for policy and research

Recognising that the sector-based institutional data collections are a potentially valuable source of data on student transitions, the authors suggest that directions for future policy and research should seek to:

- maximise the consistency of data fields in each institutional data collection and identify common data fields (based on agreed systems of classification) that should be incorporated in the future

- develop a mechanism for reporting all forms of participation in education and training (both award and non-award) in each institutional data collection
- explore the potential of institutional data collections to provide a longitudinal perspective on student pathways through mechanisms such as a unique student identifier portable across all sectors

Introduction

The nature of participation in education and training is changing and the traditional divisions between the sectors are breaking down. There is now greater movement of students between the sectors, including from higher education to VET courses (Golding 1998). Increasing numbers of young people now follow education-to-work pathways that involve non-traditional, concurrent and/or sequential combinations of education and work (Dwyer & Wyn 1998). The demand for VET courses in schools is also blurring the traditional sectoral divisions between providers.

As there is an increasing flow of students between the sectors at the post-compulsory level, policy-makers and institutional planners need data on student movement in order to understand changes in the demand for education and training and how best to meet student needs. For example, national initiatives such as credit transfer protocols aim to assist students to make the transition from VET to higher education, yet our capacity to monitor the effectiveness of credit transfer is limited by the scope of the data collected by each sector. Although it is possible to obtain some information about credit transfer from higher education collections (see Cummins et al. 1998), the data do not easily yield information about student pathways. Policy-makers have only a limited capacity to monitor student movement through post-compulsory education and training, particularly when students engage in courses offered by more than one sector. As one respondent remarked, '... (improved cross-sectoral monitoring) would certainly assist policy makers to understand the trends and shifts in student profiles, training needs and lifelong learning'. Without a 'window' through which to 'see' shifts in the student profile—and the outcomes of student transitions—policy-makers are unable to develop or implement policies to assist individuals in navigating the education and training system.

Greater consistency in the data collections for each sector would improve the capacity of policy-makers and researchers to monitor equity issues. In view of the growing inequality in access to education and training opportunities, there is a strong imperative to monitor the educational access, participation and outcomes of different socio-economic groups. A recent cross-sectoral review of equity policies found more similarities than differences in the equity policies of each sector. However the authors of the report found that the task of comparing data on equity outcomes was hampered by the lack of comparability between the data for each sector and the limitations of the data collections in some sectors. The authors suggested that reporting on equity issues could be improved by collecting and publishing data from all sectors in the National VET Provider Collection (Watson et al. 2000).

A range of data sources other than institutional collections is available to researchers and policy-makers in education and training. Longitudinal surveys (such as the Australian Youth Survey, the Australian Longitudinal Survey, and the Youth in Transition Survey) are an important resource for monitoring student transitions over time. The ABS census is a rich source of data on education and training. Other important sources of data from ABS include the survey of education and training experience, labour force surveys, the time-use survey, the transition from education to work survey, and the employer training practices survey. Data on graduate outcomes in terms of further study and employment are provided by the graduate destinations survey and course experience questionnaire in higher education and the student outcomes survey for VET undertaken annually by the NCVER. The NCVER publishes detailed statistics of participation in apprenticeships and traineeships drawn from data on contracts of training arrangements (see NCVER 2000a). State education and training

authorities, the Commonwealth Government, the Australian National Training Authority (ANTA) and the NCVER also commission surveys on education and training issues.

It is beyond the scope of this study to evaluate the contribution of all of these activities to monitoring student pathways. Different types of surveys serve a range of different purposes. Researchers who use institutional data collections generally do so because they provide a richly detailed and comprehensive map of student participation in education and training across Australia and between regions. Institutional data collections are an excellent source of information on the patterns of participation among disadvantaged sub-groups of the population. Institutional data also have the potential to provide information on levels of educational attainment and transitions between the sectors.

By contrast, sample surveys are unreliable for reporting at the level of statistical region. It is often difficult to generalise from sample surveys about the educational experience of disadvantaged sub-groups (see Lamb, Polesel & Teese 1995).

Institutional collections complement survey data by providing unit-record data for whole student populations. Institutional databases collect data on individual students, usually at the time of enrolment. The primary purpose of institutional data collections is to record students' educational progress and to provide accountability information for the governments that fund education and training. The national institutional data collections usually collect student statistics from any education and training provider in receipt of government funding. Comprehensive information on private providers is usually not available within institutional data collections. Institutions also use their own enrolment data for internal policy and planning. The National Schools' Statistics Collection, the National VET Provider Collection, and the Higher Education Statistics Collection are the main sources of national-level data sourced from education and training institutions in Australia.

The variety of State-based data collections on education and training participation are not considered in this paper, although they are a potential rich source of data on student pathways. In particular, the senior secondary assessment agencies at the State and Territory level hold quite detailed unit-record data on senior secondary students. These records are potentially important sources of national information on student pathways, particularly as they contain details of subject choices, and student achievement levels. The National Education and Training Statistics Unit (NETSU) within the ABS is currently holding discussions with relevant State agencies to examine the feasibility of including this data in the National Schools' Statistics Collection.

In recent years there have been several initiatives aimed at extending and improving the scope and utility of institutional databases. But as these initiatives have tended to be sector-specific, they have left unresolved a number of limitations and problems associated with the comparability and quality of data between the sectors. Increasing numbers of tertiary institutions enrol students in both VET courses and in higher education degrees. During a recent review of universities' reporting requirements commissioned by DETYA and undertaken by Coopers & Lybrand, a number of tertiary institutions identified difficulties they experienced in coping with the different requirements and timing of the Higher Education Statistics Collection and collection to the National VET Provider Collection. The data collection mechanisms are still designed to meet the funding and administrative objectives of governing bodies in each sector rather than the goals of national consistency and inter-sectoral comparability which are required for effective planning.

This study has the modest goal of assessing the sensitivity of national institutional data collections to cross-sectoral student movement. There are two areas of policy and research interest that should be informed by institutional data collections: student flows between institutions within a sector and student flows between the sectors. As a minimum, to monitor student flow *within* a sector, we need data on:

- prior educational attainment and highest level of education attempted and when
- the sector and institution of prior education and training
- region of present and previous home address to indicate mobility

- commencers and completers so that we can understand student attrition
- overlap of offerings with other sectors

The minimum level of data needed to monitor student flow *between* the sectors, includes:

- numbers of students
- the basis for the transition (for example, credit transfer)
- region of present and previous home address
- sufficient background details to inform the investigation of equity issues

As a minimum, data systems for each sector should provide information on the above topics. Ideally, data systems should also record educational outcomes such as achievement. But in recognition of the many operational constraints on sector-based data collections, this study is a first attempt to explore the potential of the data collections for monitoring student movement between the sectors. It should be seen as the beginning of an on-going dialogue about the adjustments needed to improve the usefulness of institutional data collections for policy and research.

The project team believes that the existing data collection framework has the potential to serve better the goals of researchers and policy-makers as well as administrative objectives. In light of the rapidly changing patterns of student participation, there is an urgent need to improve the usefulness of existing data collections for policy analysis and planning. Given the significance of education and training to Australia's economy and society, it is important for policy-makers to understand the dimensions of recent changes in student demand. The purpose of this paper is to identify some modifications that would enable sector-based data collections to provide data on cross-sectoral student pathways in addition to performing their institutional and administrative role.

The first four chapters of the paper discuss the main national data collections in each of the four sectors. Each chapter identifies proposed modifications to the data collections in each sector. The chapter which follows indicates future directions for policy and research in the longer term. The analyses and modifications proposed in each chapter are summarised in the report's executive summary. The final chapter summarises the main points made by respondents to the consultation paper.

School student statistics

The main source of aggregated national data on students in Australian schools is the National Schools' Statistics Collection (NSSC). The NSSC is compiled by the Australian Bureau of Statistics on behalf of the Task Force on School Statistics (TOSS) appointed by the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA). State and Territory education authorities and non-government schools' education authorities provide the data to the ABS based on an annual school census conducted in August each year. The data are published annually in *Schools Australia* (ABS catalogue no. 4221.0).

Fields relating to student background

The student characteristics reported in the NSSC are:

- age at 1 July
- gender
- Indigenous students
- full-time or part-time
- year of schooling
- full-fee-paying overseas students
- type of school attended (that is, government, non-government, special school)

Mature-age students are not identified separately in the NSSC other than as the age group of 20 years and over. Students repeating Year 12 are not identified separately but are recorded as Year 12 students. Evening students are included in the full-time equivalent (FTE) category of part-time students. Students undertaking work experience are not identified separately.

The National Schools' Statistics Collection does not provide any basis for monitoring student movement beyond the sector, or the completion of Year 12 (in the sense of graduation with a completed senior certificate). The schools census records only the number of students on the school roll on census day in August. Some details on students' transitions to further education and training can be obtained from the National VET Provider Collection and the Higher Education Statistics Collection, although there are gaps in the information on school experience reported in these collections (as discussed in the following chapters). There is no basis for monitoring school students' transitions (successful or otherwise) into the labour market.

Improving the comparability of school student statistics

The school statistics within the National Schools' Statistics Collection provide very little detail on student background characteristics and student pathways by comparison with the statistical collections in the VET and higher education sectors. The NSSC data provide only the most basic level of information on education participation for males and females and Indigenous students at an aggregated State or national level. It is not possible to analyse population sub-groups by criteria such as region, language background or disability. As the

data collection does not record information on achievement it is not possible to monitor educational outcomes.

This poses a major limitation on the effective monitoring of the movement of students from schooling to further education or training. The purpose of this paper is to identify modifications that would improve the scope, usefulness and comparability of the sector-based statistical collections to researchers and policy-makers. In this section, we discuss the changes necessary to make the reporting of student statistics within the NSSC more consistent with the National VET Provider Collection and Higher Education Statistics Collection.

The NSSC is based on data provided by State and Territory education authorities and non-government schools following a school census in August. These authorities possess more detailed data on student participation than the data provided for the National Schools' Statistics Collection although there is variation in the type and level of aggregation of the data collected by the government and non-government agencies in the various States and Territories. Respondents confirmed that all schools possess student enrolment data and these data are aggregated at the State level—although in some systems, only a limited amount is available in electronic form. The main obstacles to the automated collection of unit-record data appear to be the absence of a unique student identifier in some States, lack of suitable communications infrastructure and lack of uniformity in school administrative systems.

All government school systems and private schools would have access to the home address—and postcode—of all students enrolled. In addition, most school education authorities collect details of a student's family background at the time of enrolment. Languages spoken at home, previous schools attended and details of the occupation or educational level of a student's parents are usually recorded at the time of enrolment. While this information would be highly informative for policy and research purposes, it is not part of the NSSC.

The NSSC cannot report student data at the same level as the National VET Provider Collection and Higher Education Statistics Collection because it is not based on unit-level records. The NSSC could report more detailed student data if it were drawn from student enrolment records that reported information in agreed data fields. Under such a system, the annual schools census would be drawn from a unit-level data base, containing fields such as age, gender, home language, occupation/education of parents, home address and postcode. The ABS could then extract key fields for summary reporting at various geographical levels (State/Territory, statistical local areas, Australia, etc.) and cross-tabulate information by year level and so on. This would enable fields such as postcode to be used in analysing student transition, and also allow estimates of the number of young people in school by postal district of the student's home address. This would provide a better (but not perfect) means of estimating regional school retention rates as well as transition rates from schools to further education and training. It would also enhance our understanding of regional youth employment issues. If the schools census were compiled from unit-record data, the NSSC would have the same basic structure as the National VET Provider Collection and the Higher Education Statistics Collection.

Most respondents acknowledged the usefulness of developing a unit-level database for schools based on student enrolment records that would improve the comparability of school statistics with the other sectors. They identified a range of issues that would need to be addressed before this could be achieved: technical and logistical issues concerned with data identification, data collection and transfer; storage architecture; and analysis capability. Resourcing issues were raised in regard to how these additional requirements would be funded. Respondents also mentioned the need to establish an authoritative body through forums such as MCEETYA or ABS to oversee and co-ordinate any future developments. Legal issues associated with mandatory reporting requirements would also need to be addressed.

A proposed modification to the NSSC is to draw the annual schools census from a unit-level database based on student enrolment records.

Potential for monitoring cross-sectoral participation and Year 12 retention

Information on students' school experiences, particularly in the post-compulsory years, is a key element of monitoring transitions between the sectors of schools, VET and higher education. In the following sections, we discuss the importance of improving the reporting of aspects of post-compulsory participation in schooling within the NSSC.

VET activity in schools

An important form of cross-sectoral participation is the growing provision of vocational education and training in secondary schools. Students undertaking VET components participate in a form of structured work experience that has an accredited training component. In 1996, 62% of all Australian schools provided some type of school-industry program (Misko 1999). The ABS *Education and training experience survey* found that 11% of persons aged between 15 to 20 years who were still at school in 1997 had undertaken TAFE-accredited subjects (ABS 1997).

Recent research suggests that structured work experience improves the employment outcomes of students undertaking courses in VET and higher education (Ryan 2000). Although many secondary school students participate in work experience programs, little is known about the impact of these activities on educational outcomes or post-school pathways. As the provision of work experience programs is a resource-intensive activity undertaken by secondary schools, it would be useful to know more about the scope and nature of this provision. In monitoring work experience activity, a distinction also needs to be made between structured work-based training and unstructured work experience. One respondent suggested that only data on structured work-based training should be requested as the collection of data on unstructured work experience would be too great a burden on the system.

The NSSC does not report participation in VET-in-Schools programs, or participation in any form of work experience (structured or unstructured). Data on VET in schools based on information provided by schools to education departments are valuable, but are not linked with the annual school census and cannot be used to look at issues of post-school transition (for example, what are the employment outcomes for the VET in schools students?). In recent years, MCEETYA has sponsored a series of initiatives to improve the information available on VET in schools activity in Australia.

A proposed modification to the NSSC, which involves re-structuring the census (discussed above), is to report the level of participation in VET-accredited subjects and work experience programs among school students.

Year 12 retention

The rate at which students complete secondary school is an important issue for both policy and research, particularly in light of the plateau reached in Year 12 retention rates during the past decade. The NSSC data are currently used to estimate Year 12 retention rates for the population sub-groups of males, females and Indigenous students, and by the categories of government and non-government schools. The apparent Year 12 retention rate published by the ABS is the best available guide to Year 12 retention at a national, State and Territory level. The NSSC data do not record Year 12 completion as they refer to the students enrolled on school census day in August.

The main limitation of the NSSC data for estimating Year 12 retention is that it cannot account for population flows between the States and Territories or between schools. Apparent Year 12 retention rates are derived by showing students enrolled in Year 12 in a given year as a percentage of their respective cohort group at the commencement of their secondary

schooling four or five years earlier (depending on the State or Territory in which they are enrolled). The Year 12 retention rate therefore does not reflect the transfer of students during the intervening years, that is, from one State to another, or between government and non-government schools. Students repeating Year 12 and full-fee-paying overseas students are also included. The ABS emphasises that 'care should be exercised in the interpretation of these tables' (ABS 2000, p.68). The National Education Performance Monitoring Taskforce (NPEM) is currently investigating alternative measures of Year 12 retention.

Year 12 retention rates are an important tool for monitoring cross-sectoral pathways because they indicate levels of student participation in post-compulsory schooling. Unfortunately the data provided for the purpose of calculating the apparent Year 12 retention rate limit the usefulness of this information for policy and research. The lack of regional information makes it difficult to reliably compare Year 12 retention rates between regions, or to develop a regional 'map' of participation rates in each of the sectors.

In spite of the shortcomings of the estimate of Year 12 retention, if the ABS did not estimate apparent Year 12 retention rates, the calculation would be done by others on the basis of the data provided.

One way to improve the estimation of Year 12 retention rates is to track individual students. This would involve assigning a student ID number to students during the compulsory years of secondary schooling. A data file could then be built for senior secondary students containing student background information and grade progression rates. Potentially, this would leave scope for the inclusion of data on other areas of policy interest such as subject choice, work experience and achievement extracted from other data bases. A student ID number could only be assigned to students if the annual school census were drawn from a unit-level database based on student enrolment records. Inclusion of a student ID would be possible with the suggested re-structuring of the census, involving the compilation of unit-level records, followed by aggregation to various geographical levels for summary reporting.

A proposed modification to the NSSC is to assign student ID numbers to secondary students.

Summary

The National Schools' Statistics Collection is of limited usefulness in monitoring post-compulsory participation or student transitions to further education and training because it is not based on unit-level student records. Although student background characteristics are recorded by schools at the time of enrolment and often aggregated to the system level, these data are not currently reported in the National Schools' Statistics Collection. One way to improve the comparability and usefulness of the NSSC would be to draw the annual schools census from a unit-level database based on student enrolment records. This approach could also enhance the estimation of Year 12 retention if a student ID number were assigned to secondary school students. If the schools census were compiled from unit-record data, the NSSC would have the same basic structure as the National VET Provider Collection and Higher Education Statistics Collection.

Proposed modifications

The NSSC should:

- draw the annual schools census from a unit-level database based on student enrolment records
- report the level of participation in VET-accredited subjects and work experience programs among school students
- assign student ID numbers to secondary students

Vocational education and training student statistics

Data on students in vocational education and training in Australia—other than in schools—is recorded in a collection known as the National VET Provider Collection. The data are collected in accordance with the Australian Vocational Education and Training Management Information Statistical Standard (AVETMISS). Data are derived from the enrolment files of providers, with these files being prepared according to the instructions for AVETMISS. TAFE institutes and private providers in receipt of government funding are required to report information to the National VET Provider Collection and other providers may provide information on a voluntary basis. Statistics based on the National VET Provider Collection are published annually by the National Centre for Vocational Education Research. The NCVER produces a range of high-quality publications drawn from this collection, such as an annual statistical report, overview reports, and specific publications on disadvantaged client groups, and apprentices and trainees. The NCVER also publishes statistics on Australian apprentices and trainees based on data from contracts of training arrangements (NCVER 2000a). These statistics are widely accessible through the NCVER web site.

An important issue to be taken into account in using VET student statistics compared to statistics for schools and higher education is the definition of a completed award or course. In the VET system, not all students who enrol in courses intend to complete them. Many students intend to complete a few modules only, in order to obtain specific skills. In the higher education sector, these students are reported as 'non-award' enrolments. In VET, there is no way of distinguishing between these students and students who commence courses with the intention of achieving an award. Reported non-completion rates for VET courses therefore should not necessarily be interpreted as a poor outcome (see Foyster, Fai & Shah 2000).

Fields relating to student background

At the time of enrolling in TAFE, students are asked to complete a series of standard enrolment questions. It is from the fields based on these questions that information is extracted on education and training pathways. This is also the source for population characteristics. These characteristics include:

- date of birth
- gender
- cultural background (Aboriginality, born overseas, which country?)
- main language spoken at home
- postcode of address
- disability (including type of disability)
- highest level of schooling completed (plus year and whether still attending)
- post-school qualifications completed
- labour force status

Although the standard questions cover numerous student characteristics, the value of the data produced by the questions is limited in some cases by poor responses from students as they complete their enrolment forms (discussed in a later section).

Potential for monitoring cross-sectoral movement

There are four types of cross-sectoral student movement that should be monitored for policy purposes in the National VET Provider Collection: from school to TAFE, from adult community education (ACE) to TAFE institute and from university to TAFE. The potential of the National VET Provider Collection in each of these areas is discussed below.

From school to TAFE

The two elements of highest level of schooling completed and year in which highest level of schooling was completed provide general information on schooling levels of people beginning study in TAFE (or those who are currently enrolled). For example, in Victoria in 1998, about 30% of people commencing a certificate II course had completed Year 12, with over half of these having completed Year 12 before 1992. However, large numbers of enrolling students do not provide the relevant information, especially year level. Nearly 17 in 100 students do not say what level of schooling they have completed, even if they often nominate the year in which they did complete this unknown level. Although many reasonable inferences can be drawn about student characteristics in spite of missing data, high non-response rates do erode the value of these data elements. With such a high proportion not completing the questionnaire, estimates of how much schooling has been received by cohorts enrolling in a TAFE course could be incorrect by quite large margins. In the example of commencing students in certificate II courses, the 30% who claim to have finished Year 12 could be as high as 47%, and the year in which this is reported to have occurred could vary by around 4%. This is one problem with the database as far as measuring movement of students across sectors is concerned.

It is likely that the complexity of the information requested for the National VET Provider Collection, while enhancing the data's usefulness to researchers, also contributes to the high non-response rate on certain data items. This issue needs to be considered in light of the recommendations of this report to increase the amount of information collected in the National VET Provider Collection. The NCVER has implemented several strategies to reduce the rate of non-response by students, through IT protocols and checking mechanisms. These strategies are likely to continue to improve the rate of response on key data items.

The agency responsible for the National VET Provider Collection should continue to develop strategies to reduce non-response by respondents, particularly in reporting highest level of schooling completed.

A second problem relates to the generality of the information, even if students do complete the relevant questions. While there are understandable reasons for not requiring students to complete long and complex forms at the time of enrolment, it is not clear how such information as they currently do provide on level and year of completed schooling can be used to guide, monitor or evaluate programs or policies. Students are not asked to provide the more detailed information that such tasks require. For example, in what State or Territory did they complete their schooling (or was this overseas)? Without this information, it would not be possible to use student responses to estimate transition rates from school to TAFE within a particular jurisdiction. Attempts to develop regional strategies which involve alliances between TAFE institutes and local schools are hampered by the fact that the National VET Provider Collection database lacks key geographical and institutional fields relating to schooling. We do not really know how much movement occurs at a regional level between schooling (to a certain level) and vocational education and training (at a certain level). Respondents pointed out that many students would not know the postcode of their school and would need assistance to provide this information.

A proposed modification to the AVETMIS Standard is to request the name and postcode of the school attended.

Similarly, no information is available on the type of school attended by the student. These details are relevant to issues of regional equity or the need for government school systems to monitor transition to TAFE from the schools for which they are accountable. The National Schools' Statistics Collection reports school participation by three types of school: government, Catholic, and other non-government. Some respondents pointed out that this information is more relevant to young people in VET than to the majority of VET participants who are, on average, over 30 years of age.

A proposed modification to the AVETMIS Standard is to report the type of school attended (that is, government, Catholic and other non-government).

There are other difficulties with the current data elements that impede their use for cross-sectoral research and policy development. For example, the concept of completed level of schooling—which replaced an earlier field on highest level of schooling attempted—leaves open the question whether, in a subsequent year, a student did enrol in school, even if he or she subsequently withdrew. In its current form, this element may tend to under-estimate school-to-TAFE transition because students who attempted (but did not complete) a given year level in a given year would not be included in the transferring cohort. For example, if 100 students entered TAFE in 1998, having completed Year 11 in 1997, out of a total cohort of 1000, then the relevant transition rate to TAFE would be 10%. But it is possible that a further 20 students entered TAFE in 1998 who had attempted, but not completed Year 11, having dropped out before the end of the year. In that event, the transition rate should be 12%, not 10%. Since the data collection shows that there is not an insignificant number of commencing students in TAFE who claim to have completed school in the calendar year in which they began at TAFE, or who claim to have still been attending school, this example is relevant.

However the benefits of improving the quality of data in this area may be outweighed by the additional administrative complexity of requesting data on the highest level of schooling attempted and the relevant year. A reviewer pointed out:

... the original collections of VET provider data under the AVETMIS Standard, for 1994 and 1995, included details of any prior education attempted and any prior education attained by VET students. After two years it was decided to limit the collection to prior education attained because of the additional complexity required on enrolment forms and because the information obtained was of poor quality. Since the collection requirements have been simplified, the quality of this information has been much better. Similar concerns led to the removal of a data element relating to prior ACE activity on the part of students.

(Anonymous reviewer)

If adding more items to the AVETMIS Standard is likely to substantially increase the non-response rate, the data collected are of less value to researchers. Nevertheless, the authors feel it is important to highlight the areas where the potential for monitoring cross-sectoral movement could be improved. Given the growing need to track student pathways through education and training, it is to be hoped that ways can be found to collect more data on prior educational experience without compromising the integrity of the institutional data collections. One respondent to the discussion paper suggested that the development of on-line enrolments could reduce the rate of non-response by students.

Adult community education (ACE) to TAFE institute

Many adults return to study through community organisations that are part of adult community education. Although only a minority continue in study after completing their courses—with the largest group actually staying within the community sector rather than moving beyond it—the actual levels of transfer cannot be accurately determined from the National VET Provider Collection.

The standard enrolment questions invite students to state any qualifications they have completed since leaving school. There is a pre-coded category most relevant to adult learning in ACE, since the great majority is in basic general or vocational courses. This allows them to

claim completion of a certificate (other than trade or advanced technician), for example, a Certificate in General Education for Adults. But fewer than 1 in 10 students in the community sector enrol in accredited courses. They may or may not be issued with a certificate, or they may simply receive a statement of attainment. So it is an open question whether they will identify themselves as having any post-school education, especially as the wording of the question refers to 'COMPLETED any qualification' (original emphasis).

As in the case of levels of schooling, students are not asked to indicate either the nature of the provider—was it a community organisation, a TAFE institute, a school, a private provider?—or the State/Territory or region where the provider was located. As a result, although a general analysis can be made of the post-school qualifications of adults entering TAFE, this cannot be extended to look at either the sector in which their qualifications were obtained or the category of provider (for example, community house) or the geographical location of the provider. Consequently, sector flows into TAFE cannot be estimated, at least from the data elements furnished by the standard enrolment questions.

A reviewer pointed out,

... recent work undertaken by the NCVER involving matching clients in different collections now allows quite reasonable tracking of students over time and across sectors. The major limitation to this work is the rate of non-compliance with the existing Standard. Providing compliance is maintained, and preferably improved, cross-sectoral tracking is quite a realistic possibility and could be extended to other sectors. The major limitations to such an extension relate to protocols and confidentiality rather than technical limitations.

The authors acknowledge the NCVER's efforts to improve the potential of its data collections for monitoring cross-sectoral student movement and endorse the centre's continuing work in this area. The main limitation of this approach is the limited range of institutions from which data are collected under the AVETMIS Standard, namely publicly funded institutions. The usefulness of seeking data on prior educational experiences from students is that information can be obtained on a range of private or community providers currently not reporting to the AVETMIS Standard. We make the following recommendation to flag researchers' continuing interest in increasing the amount of information collected from students at the point of enrolment, while recognising that this may not be feasible in the short term (for the reasons identified in the previous section). The feasibility of this recommendation must ultimately be considered in light of the possibility that adding more items to the AVETMIS Standard could increase the non-response rate, which would reduce the usefulness of the data collection.

A proposed modification to the AVETMIS Standard is to report the most recent form of education participation by type of course, whether it was award or non-award, complete or incomplete and the type of provider (that is, TAFE institute, community provider, private VET provider, university etc.).

University to TAFE institute

It is known that there is significant 'reverse' movement from university into TAFE (see Golding 1998). The 'prior achievements' question which TAFE students complete at the time of enrolment enables individuals to be grouped according to whether they have completed either an 'undergraduate diploma' or a 'degree or postgraduate diploma'. In theory, therefore, the flow of university graduates into TAFE can be monitored.

However, this is not necessarily the research question of greatest policy interest. Given concerns over levels of non-completion in university (and TAFE), the current wording of the question on 'prior achievements' presents a major research hurdle. Students have to report any 'COMPLETED ... qualifications' (original emphasis)—not whether they have previously attempted a particular course of study (for example, bachelor's degree). Thus, if a student belonged to the group of one in three undergraduates who are estimated to withdraw from their courses, he or she could not validly refer to an incomplete university degree. In short, we do not know how many university 'drop-outs' find their way into TAFE. This is a major limitation, in view of the potential of TAFE to restore students to the path to effective learning or to provide alternative vocationally oriented courses or a more pedagogically secure environment.

Besides this limitation, there is the issue of generality already identified in previous sections above; that is, had a student completed a university diploma or degree, it would not be known whether this was in Australia or overseas, and if in Australia, what State or Territory. This may not represent as large a constraint as applies in the context of school-to-TAFE or ACE-to-TAFE movement, for these involve vertical movements or expanding opportunities, and equity is a big issue in both cases. It may not be so important to know in which State or Territory a TAFE student had previously completed a university degree or diploma (or in which institution), although this may become more important through portable scholarships or in the case of overseas graduates in relation to recognition of awards.

A proposed modification to the AVETMIS Standard is to report the highest qualification attempted, the relevant year and the name and postcode of the provider.

Summary

Although the NCVER is undertaking work involving matching clients in different collections in order to track students over time, the National VET Provider Collection can only be used in a limited way to map cross-sectoral movement of students directly from the data fields. This is partly because information on the past education and training activity or achievements of students is collected at a general level without reference to sector or provider (or jurisdiction or region). Another reason is non-response of students in completing relevant questions at the time of enrolment. It is likely that the complexity of the information requested under the AVETMIS Standard, while enhancing the data's potential usefulness to researchers, contributes to the high non-response rate on certain data items. The following recommendations therefore need to be considered in terms of their potential impact on student response rates.

Proposed modifications

The AVETMISS data should report:

- the name and postcode of the school attended
- the type of school attended (that is, government, Catholic, other non-government)
- the most recent form of education participation by type of course, whether it was award or non-award, complete or incomplete and the type of provider (that is, TAFE institute, community provider, private VET provider, university etc.)
- the highest qualification attempted, the relevant year and the name, postcode and type of provider

The AVETMISS collection agency should continue to develop strategies to reduce non-response rates by respondents, particularly in reporting prior educational experience.

Higher education student statistics

The main source of statistics on students in higher education in Australia is the Higher Education Statistics Collection maintained by the Commonwealth Department of Education, Training and Youth Affairs. Data are derived from the enrolment files of the 41 higher education institutions in receipt of Commonwealth operating grants plus the Australian Film and Television School, the National Institute of Dramatic Art and the Australian Defence Force Academy. Data on students undertaking higher education courses in private providers are not collected, with the exception Avondale College and a limited number of students at the Broome campus of the University of Notre Dame Australia. A selection of the statistics is published annually and is available free of charge from the DETYA web site.

Fields relating to student background

The Higher Education Statistics Collection maintained by DETYA contains a range of student background fields, including elements on prior education and training, which are available for mapping cross-sectoral movement. As a guide to possible levels of analysis using the collection, the fields on student background include the following (education fields are in *italics*):

- Aboriginal or Torres Strait Islander
- term and home address
- country of birth
- year arrived in Australia
- main language spoken at home
- disability
- *basis of admission to current course*
- *prior postgraduate course; year*
- *prior degree course; year*
- *prior sub-degree course (not at TAFE); year*
- *prior sub-degree course (at TAFE); year*
- *prior TAFE award course; year*
- *prior secondary education at TAFE; year*
- *prior secondary education at school; year*
- *prior other qualifications/certificate; year*
- *other fields (for example, TER, prior studies exemption status)*

Potential for monitoring cross-sectoral movement

The potential of the DETYA student data collection for monitoring cross-sectoral movement is discussed in the following areas: from school to university, from TAFE to university and from adult community education (ACE) to university.

School to university

Whether a commencing student in higher education completed the final year of secondary school (and in what year) can both be read from the higher education student collection. Year levels completed below Year 12 are not indicated (unlike in the National VET Provider Collection, and probably because Year 12 is the normal basis of matriculation for school leavers). Using several related fields in the higher education collection makes it possible to distinguish the broad institutional sector in which the final year of school was completed, that is, on the one hand, at any high school, technical high school, secondary school or secondary college, and on the other hand, at any TAFE college, technical college, evening school, college of advanced education (CAE), evening college, institute of technology, institute of advanced education or institute of tertiary education (with respect to non-overseas students). Thus, broadly speaking, any non-school route to completing a senior school certificate is captured (as well as the orthodox pathway through school).

It needs to be stressed that the flag for completing schooling does not refer to how a student was admitted to higher education, simply whether or not the final year was completed, when, and in what broad sector. The basis on which a student was admitted is a separate field (discussed later). By distinguishing between these aspects, it is therefore possible to ascertain whether, for example, a student who completed final year of school in a non-school setting was admitted on this basis, or on some other basis, for example, a TAFE award, relevant industry or professional experience, etc.

As with the National VET Provider Collection, the Higher Education Statistics Collection does not enable the State/Territory or geographical region in which the final year of school was completed to be identified. Thus, although for the State or Territory in which they enrol in university, the total number of students with a completed final year of secondary school can be estimated, this figure cannot be validly related to the whole pool of school students in that State or Territory as recorded in the annual school census for the relevant reference year. An unknown number of commencing students completed their final year of school interstate, and this group cannot be isolated using data elements in the statistical collection.

The sector of schooling in which the final year of school was completed (for example, government, Catholic, private non-Catholic, including coaching school) is not identified.

A proposed modification to the Higher Education Statistics Collection is to report the name and postcode of the school attended, and the type of school attended (that is, government, Catholic, and other non-government).

TAFE institute to university

The Higher Education Statistics Collection records whether a student has:

- completed (or undertaken) a *sub-degree course* at TAFE (that is, a diploma or associate diploma, under the old nomenclature of TAFE awards)
- completed (or undertaken) a sub-degree course at an institution other than TAFE (that is, at a CAE, university, teachers' college etc.) (in relation to non-overseas students) and/or
- completed (or undertaken) a *TAFE award course* (other than a sub-degree course at TAFE) (non-overseas student)

These fields enable distinctions to be drawn in the sector and program origins of students, for example, the student with an Associate Diploma in Business Studies completed at TAFE, the student with a diploma completed at a former CAE, and the student who may have attempted, but not finished an advanced certificate or tradesman's award in a TAFE institute. These distinctions relate, as before, to the educational history of the student, not the basis on which the student was admitted to higher education.

Estimates can be made of the proportions of people with a TAFE background who are commencing in higher education in a given year at a national level and a State/Territory level. However, this does not mean that flows from TAFE into higher education can be accurately measured. The National VET Provider Collection student collection tells us the number of students enrolled in various award courses in any given year, including those who completed their study in that year. In theory, the TAFE cohort graduating with an associate diploma or diploma in 1998, for example, should be able to be compared with commencing students in higher education in 1999 who had completed an associate diploma or diploma in 1998. In that case, the rates of transition from these program levels in TAFE into higher education could be estimated. Filters would need to be applied to the relevant client fields in AVETMISS to screen out full-fee-paying overseas students (Code 04 in the element, Funding Source—National, associated with each module studied). But detailed efforts would be needed to test and verify whether the cohorts in each database were indeed the same groups. The problem of student non-response with the standard enrolment questions in AVETMISS would also need to be addressed. One potential problem is the concept of 'completion' in TAFE. A large number of students do not complete their courses, although they complete selected modules. Is the concept of a completed TAFE award as operationalised in the higher education student collection compatible with the concept of 'qualification' as interpreted by AVETMISS? (The relevant element in AVETMISS is 'qualification identifier', that is, the category of award.) To test this, tables would need to be prepared from both data collections for the corresponding reference years.

The prior qualifications of students entering higher education are not necessarily those which determine admission. The example of TAFE awards is particularly relevant. Each year DETYA gives a breakdown of the basis of admission of students commencing a bachelor's course in Australian universities. This includes pass and honours courses, advanced diplomas and diplomas, other award courses, enabling courses and non-award courses (but clearly could be disaggregated). The published tables include both Australian and overseas students (which, again, need to be split out). For example, in 1997, about 7% of all commencing students were admitted on the basis of a complete or an incomplete TAFE award. A higher percentage with a TAFE background enrolled, but a large number were admitted on some basis other than their training in TAFE (for example, a senior school certificate or relevant industry or professional experience). In estimating flows between sectors, it is the award background that is relevant (that is, the highest prior qualification, whether recognised or not). But for promoting a policy of seamlessness through facilities such as credit transfer, the relevant indicator is the basis on which students are admitted.

A proposed modification to the Higher Education Statistics Collection is to report details of the most recent educational institution attended, including its postcode address.

Adult and community education (ACE) to university

Adult entry to higher education occurs through a variety of channels, including special admissions and mature-age entry provisions as well as through completion of school certificates and TAFE awards. Students who completed the final year of school in a TAFE institute can be identified in the higher education student collection. However, those who follow the same award path; for example, return to do the final year of school, and do so in the community sector, cannot be identified. There is no provider flag, or sector of provider flag, as such. The emphasis is on qualifications/programs rather than sector of origin. The participation of adults in higher education can be measured using age. But sector routes cannot be mapped from the existing data elements.

A proposed modification to the Higher Education Statistics Collection is to report whether prior qualifications were obtained from community providers.

Summary

The Higher Education Statistics Collection maintained by DETYA provides considerable detail about the prior educational experience of students which assists in monitoring cross-sectoral movement, particularly from TAFE institutions to university. However, information on the past education and training activity or achievements of students is collected at a general level without reference to sector or provider (or jurisdiction or region). The Higher Education Statistics Collection cannot provide information relevant to cross-sectoral policy issues such as transition to higher education from adult and community education.

Proposed modifications

The Higher Education Statistics Collection should report:

- the name and postcode of the school attended, and the type of school attended (that is, government, Catholic, and other non-government)
- details of the previous educational institution attended, including whether it was a community provider and its postcode address

Adult community education student statistics

Introduction

A defining characteristic of the sectors of schools, vocational education and training and higher education is that government-funded courses are delivered largely through established institutions. The ACE sector on the other hand is characterised by non-institutional providers such as community-based and not-for-profit non-government agencies, as well as organisations such as the University of the Third Age. These providers operate in learning centres, adult and community education centres, neighbourhood houses or churches and other community facilities.

The traditional view is that the ACE sector offers courses that are 'non-VET' or 'personal enrichment' in focus. However in practice, community education providers offer a wide range of courses from gardening skills and literacy education to accredited certificate courses at AQF Level IV. The labelling of courses as 'recreational' is based on assumptions about the content of the courses. Courses designed to impart work-related skills or to prepare students for such courses are designated as vocational whereas all other courses are deemed 'recreational', 'non-vocational' or 'Stream 1000'. This classification has now been discarded under the AVETMIS Standard.

With the introduction of the goods and services tax (GST), the Australian Taxation Office (ATO 2000) has issued a ruling to distinguish between courses that are likely to add to the employment-related skills of participants and courses that have hobby or 'recreational' outcomes (the latter are not GST-free). Many ACE providers and peak bodies believe that the ATO's definition of an employment-related course is too narrow. Although the ATO ruling has the potential to provide a nationally consistent definition of a personal enrichment course, it is too early to know whether this definition is being consistently applied among ACE providers.

Many participants in ACE courses participate for personal enrichment reasons and not as part of a pathway between education and employment. These ACE participants tend to have higher levels of initial education (see AAACE 1995). Monitoring ACE activity is becoming more important in the context of understanding the role of lifelong learning in the new economy. Issues of interest to researchers and policy-makers include the role of non-accredited training in increasing worker productivity; and the extent to which ACE activity provides a pathway to further education and employment for people who are excluded from the labour market. The 'second-chance' educational opportunities offered by community-based providers are consistent with policies to increase the educational participation rates of people from disadvantaged groups.

Community-based providers have the potential to be a point of re-entry into education for people who feel alienated from traditional educational institutions. They are also learning communities in their own right. A high proportion of courses within the community-based sector are offered on a fee-for-service basis.

The ACE sector is difficult to define and there is considerable overlap between the ACE and the VET sector. The approaches to defining ACE activity differ between the States and Territories. One respondent pointed out that some of the States and Territories use program type and student intention as 'crucial elements' in their definitions for ACE. The report by

Borthwick et al. (2000) adopted the following broad definition of ACE activity:

- All education and training activity which is delivered by community-based or community-managed organisations with focus on providing learning opportunities for adults or contributing to the recurrent vocational, personal, cultural and social development of adults
- All education and training activity whose intention is non-vocational but contributes to the personal, cultural or social development of students, and which is delivered by TAFE institutes, universities, schools, commercial, industry or other private providers which are in receipt of State/Territory of Commonwealth recurrent or specific purpose allocations for VET.

(Borthwick et al. 2000, p.7)

The NCVER publication *Australian personal enrichment education and training programs: An overview 1998* is the only national publication on ACE participation using data collected under the AVETMIS Standard (NCVER 2000b). This publication only reports enrolments in Stream 1000 courses (that is, courses that are designed for personal enrichment purposes). The AVETMIS Standard only applies to community providers in receipt of government funding (for any courses) as well as TAFE institutes and other government providers. However, some ACE activities not funded by government are reported by these providers. As in VET and higher education, private providers do not report to the national data collection. The AVETMIS Standard therefore provides an incomplete view of ACE activity. ACE activity is not recorded in either the schools or higher education collections.

Potential for monitoring cross-sectoral movement

Like institutions in the other sectors, ACE providers offer different types of education and training provision, from non-award courses through to accredited certificate courses. The NCVER estimates that in 1998, between 1.2 million and 1.4 million people (8 to 9.5% of the adult population) were enrolled in some form of ACE. Sixty-one per cent of ACE activity (in terms of annual hours) was in VET programs and 39% was in personal enrichment programs (Borthwick et al. 2000, p.6).

It would be premature to discuss the potential for monitoring cross-sectoral movement in regard to the ACE sector until fundamental issues regarding reporting standards are resolved. The NCVER recently completed a detailed investigation of this issue entitled *Scope of ACE in Australia and implications for improved data collection and reporting* (Borthwick et al. 2000). The research team concluded that the diversity of ACE provision made it very difficult to report on training activity within the ACE sector. They pointed out that there is no national data standard for ACE and no obligation for providers to pass on data on ACE activity to a national ACE data collection except for that component which is funded by government in relation to VET.

As the National VET Provider Collection covers both the ACE and the VET sectors, it is theoretically possible to obtain information on ACE student characteristics such as home postcodes, language, disability and labour force status. But in practice, there are considerable limitations on the capacity of this collection to monitor student transitions through community-based providers. These limitations relate to under-reporting of ACE provision in general and where data are collected, low response rates in fields relating to student characteristics.

Under-reporting of ACE activity

Only about half of Australia's ACE providers currently report to the National VET Provider Collection. This collection contains information on many community providers who are in receipt of public funding. Some of these agencies provide information on all courses they offer, not only those funded by government. However ACE providers not registered by their State and Territory governments, such as churches and the University of the Third Age (U3A), may not be included in the scope of the data collection. In the two largest States—Victoria and New South Wales—where the State governments provide a legislative basis for

the ACE sector, and supervise the data collection process, about 70 to 80% of ACE participants are captured (Borthwick et al. 2000, p.vii). Borthwick et al. conclude that 'in Victoria and New South Wales, and to a lesser extent in South Australia and Tasmania, the majority of State/Territory ACE activity is reported to the national VET data collection' (p.vii). However in other States, where there is less government involvement, there tend to be fewer community-based providers and reporting is more haphazard. In WA and Queensland in particular, many ACE courses are delivered through TAFE institutes.

Borthwick et al. (2000) identify seven categories of ACE activity not currently captured in the current collection:

- most activity offered by U3A, and schools for seniors in States/Territories other than Victoria as well as some of Victoria's U3A activity
- some activity delivered by community and neighbourhood houses, community adult education centres and community learning centres
- non-TAFE activity in Western Australia
- non-vocational adult education programs and evening classes delivered at some Australian universities and libraries, and by the Evening and Community Colleges' Association
- some personal enrichment activity at TAFE centres, which allows community access to TAFE facilities in accordance with State/Territory policies
- some activity at private and government secondary schools
- private personal enrichment activity such as that provided through cultural associations (Alliance Francaise, health centres, dance studios)

(Borthwick et al. 2000, pp.7-8)

Although the distinction between vocational and personal enrichment courses is problematic, there is a growing need to collect information on the characteristics of people who move through all types of education and training as part of an employment/education pathway, as well as those who undertake courses for purely personal enrichment purposes. The National VET Provider Collection in its present form is clearly inadequate for this purpose. It may be that the ACE sector will never be adequately represented in an institution-level data collection and that researchers and policy-makers will have to rely on alternative sources of information, such as an expanded *ABS Survey of education and training experience* (see Borthwick et al. 2000, p.x). However the benefits of institution-based data (discussed in the Introduction to this report) suggest that further work should be undertaken to improve the level of reporting on ACE activity. This cannot occur without the co-operation of State and Territory governments.

The data on ACE participation provided to the National VET Provider Collection are reported via umbrella organisations in each of the States and Territories. In 1998, the ACE provider umbrella organisations which reported to the national data collection were:

- New South Wales Board of Adult and Community Education (BACE)
- Adult, Community and Further Education (ACFE) Board in Victoria
- Queensland Adult and Community Education
- Workers' Educational Association (WEA) of South Australia Inc.
- South Australian Adult and Community Education Unit
- Tasmania Adult and Community Education and Adult Migrant English Service (AMES)
- Numeracy and Literacy Tasmania
- ACE Unit of the Northern Territory University (NUT)
- Australian Capital Territory Adult and Community Education

The NCVER research team recommends that State and Territory governments maintain up-to-date registers of ACE providers to support any future initiatives to map ACE activity through either institutional collections or one-off surveys (Borthwick et al. 2000, p.x). It would be useful for researchers and policy-makers if each register listed organisations on the basis of an agreed typology of ACE providers that captured all types of providers, including schools, universities, interest groups, U3A, government agencies, labour market training organisations, industry training providers, private providers and community non-profit organisations.

To assist in future efforts to improve the quality of ACE statistics either through institutional collections or surveys, State and Territory education authorities should maintain up-to-date registers of all types of ACE providers within their jurisdiction, according to an agreed national typology.

Under-reporting of prior educational experience

Where information is collected from ACE providers, the information tends to be incomplete, particularly in the fields that are useful for monitoring student pathways between the sectors. For example, the National VET Provider Collection data on participation in 'personal enrichment' courses has an extremely high non-response rate in reporting prior educational experience. Whereas 17% of VET students do not respond to the request for information on highest level of educational achievement, the non-response rate for students in 'personal enrichment' courses is 75% (NCVER 2000b, p.12). This makes it impossible to use the data to provide information about student transitions.

Several reasons have been put forward for the high non-response rate in relation to ACE activity. First is the fact that the information is often provided voluntarily (that is, for ACE activities not government-funded). One respondent therefore suggested that mandatory reporting of ACE activity should be imposed. The second reason is that the current data requirements are an administrative and financial burden for many ACE providers who lack the resources to report to the AVETMIS Standard. Borthwick et al. (2000) suggest that a less complex standard might elicit a higher response rate from ACE providers. They propose that the information requested should be broader in scope but more limited in depth compared to what is collected for the public VET system (p.x). Third, ACE providers do not appreciate the importance of collecting comprehensive data, either because they do not perceive it as relevant to them, or because it is not fed back to them by collection agencies (Borthwick et al. 2000, p.15).

In their final report, the NCVER team recommended that the National Training Statistics Committee considers the feasibility of collecting a reduced amount of information on personal enrichment programs—to obtain more breadth (at the expense of depth) in the ACE data collection (Borthwick et al. 2000, p.x). This approach seems a sensible way forward, provided that a minimum amount of information to enable monitoring of cross-sectoral movement is sought.

The National Training Statistics Committee should investigate ways of making it easier for ACE providers to report information on ACE activity to the National VET Provider Collection while ensuring that a minimum level of information on student's prior educational experience is sought.

Summary

The adult community education sector is a significant provider of education and training at the local community level. It is important to monitor student movement through ACE activities to improve our understanding of the role of all forms of education and training in promoting lifelong learning. However it would be premature to discuss the potential for monitoring cross-sectoral movement in regard to the ACE sector until fundamental issues regarding reporting standards are resolved. The National VET Provider Collection has the potential to monitor ACE activity but currently captures only about half of all ACE provision.

Where ACE activity is reported through the AVETMIS Standard, the data are characterised by higher rates of non-response than other types of provision.

Proposed modifications

The proposed modifications in respect of ACE are:

- To assist in future efforts to improve the quality of ACE statistics either through institutional collections or surveys, State and Territory education authorities should maintain up-to-date registers of all types of ACE providers within their jurisdiction, according to an agreed national typology.
- The National Training Statistics Committee should investigate ways of making it easier for ACE providers to report information on ACE activity to the National VET Provider Collection while ensuring that a minimum level of information on students' prior educational experience is sought.

Future directions for policy and research

This paper has the modest objective of identifying technically feasible modifications to the existing institutional data collections that would improve the scope, usefulness and comparability of the data for monitoring student pathways through post-compulsory education and training. It was not the purpose of this research project to design a new data collection system that would comprehensively meet the needs of policy-makers and researchers in monitoring student transitions. However, even if the modifications proposed in this report are adopted, much more could be done to improve the comparability of institutional data collections and to enhance their value for policy development and research.

This study recognises that the sector-based collections are likely to remain the main source of institutional data on student transitions. However, changes in student participation and particularly the trend towards lifelong learning have significantly blurred the distinctions between the sectors, and it is important that these changes are captured in the sector-based collections. The following points are raised as possible directions for future policy and research activities in relation to sector-based data collections.

Consistency in reporting across sectors

The matrix of information collected in each sector provided at appendix A illustrates the potential to improve the number of common elements reported in the data collections for each sector. The National VET Provider Collection in relation to VET course, and the Higher Education Statistics Collection are the most comprehensive in their reporting of student characteristics. Although many reasonable inferences can be made from the National VET Provider Collection in relation to VET students, the usefulness of the data is diminished by under-reporting of prior educational achievement. This is more severe for students in ACE courses (75% non-response) than for students in VET courses (17% non-response). As the NCVER is continually addressing this issue, the usefulness of the National VET Provider Collection for monitoring student pathways will continue to improve.

The National Schools' Statistics Collection reports the least number of student characteristics and provides no information on educational outcomes. The NSSC data would be a more valuable research tool for policy-makers if it reported student enrolment data to the same level as the National VET Provider Collection and the Higher Education Statistics Collection. As a minimum, background characteristics, such as postcode of home address, occupational and education level of parents, language spoken at home, number of previous schools attended, residency status, and disability should be reported. Data on subject choice and educational outcomes such as Year 12 attainment would also improve the usefulness of the NSSC for monitoring student transitions from school to further education and training or employment. However this would necessitate changing the way in which the annual schools census is conducted, as discussed in the first chapter of this report.

A recent report comparing data on equity outcomes across the sectors was hampered by the lack of comparability of data collections in many areas. The report proposed the following changes to each sector's data collections:

- adoption of the same sets of criteria for identifying equity target groups

- reporting outcomes for two additional sub-groups: people with low skills and people who are long-term unemployed
- capturing the socio-economic status of students by identifying, at point of enrolment, the highest educational level and occupation of the student's parents
- publishing data by the Australian Bureau of Statistics (ABS) labour force region
(see Watson et al. 2000)

The postcode of the student's home address is an important indicator of socio-economic status and is collected for students in both TAFE and universities. The precise wording of the question about home address and postcode is critical to the usefulness of this data field. For example, for post-secondary students, asking their 'address during term', 'home address' or 'parents' address' can give different results. For measuring socio-economic status, parents' address or educational level is useful for young people, but given that older people are a growing proportion of the student population, it may be necessary to undertake validity studies to assess the most appropriate measure of socio-economic status.

A direction for policy and research is to maximise the consistency of data fields in each institutional data collection and identify common data fields (based on agreed systems of classification) that should be incorporated in the future.

Reporting participation in courses traditionally offered by other sectors

Historically, the formal education sectors of schools, VET and higher education have been associated with the provision of specific types of formal qualifications. The less formal ACE sector was identified with non-accredited courses that did not lead to qualifications. There have always been exceptions to this, of course, with ACE providers offering Year 12 certificates and schools offering evening classes for adults.

These traditional distinctions are increasingly blurred by the provision of cross-sectoral courses such as VET and industry training programs in schools and Year 12 certificates and associate diplomas in TAFE. In all sectors, there has been a rapid growth in the provision of non-award courses, including single module enrolments in VET traditionally classified as ACE activity. But all institutional data collections tend to report on courses that are traditionally associated with the sector and to ignore new forms of provision. The National VET Provider Collection in relation to TAFE is the most cross-sectoral in its coverage.

In the interests of reporting participation in all forms of education and training, we would suggest that data collection agencies should aim to capture all types of education and training provision offered by the *institutions* within their particular sector. This approach would improve the coverage of course offerings within the sectoral collections and would reduce the significant under-reporting of participation in non-award courses.

A direction for policy and research is to develop a mechanism for reporting all forms of participation in education and training (both award and non-award) in each institutional data collection.

Longitudinal tracking potential

The capacity to track students across sectors (and States) is the key to understanding student pathways through education and training. The concept of pathways is now central to policy and planning in education and training and an important area for further research. The effective tracking of student movement between the sectors can now only occur through specially designed longitudinal research surveys. This approach yields valuable data but its main disadvantages are cost, a declining response rate over time, and the limitations of the sample in yielding sufficient information on population sub-groups.

It is possible to obtain a longitudinal perspective from the National VET Provider Collection institutional data collection for VET students in some States and Territories. Since 1994 the data collected under the AVETMIS Standard has carried the full name of each student. This information is encrypted to protect privacy. It is held by training providers and occasionally by peak bodies within a State. In general, it is not available at a State or national level. The purpose of this new data element is to facilitate the monitoring of student pathways through follow-up surveys.

By using specially designed research instruments, it should be possible to contact samples of TAFE/VET students. These surveys could be used to ascertain the sector of any previous education and training activity (down to provider and course detail, including information on non-completion) and to look at education, training and employment activities subsequent to completion or withdrawal from a TAFE course. This provides one way of obtaining more detailed information about education and training experiences than that provided at the time of enrolment. The number and range of questions asked at enrolment time are restricted for practical reasons and the compliance of students in responding is limited. Recognising that the information requested of enrolling students should be kept to a minimum, consideration should be given to maximising the usefulness of the institutional data collections by including 'longitudinal' fields that can be used as a basis for follow-up surveys.

The Higher Education Statistics Collection records the name and contact addresses of students, as well as a student identification number (and tax file number). Without commenting on the tax file number and the potential which this presents for tracking the further studies and career trajectories of students over an entire lifespan, personal details and contact addresses allow follow-up of samples of students over a limited period (for example, two or three years, or beyond if contact can be maintained). Longitudinal studies need not be limited to post-university destinations, but can reflect experience at university as well as capturing education and training activity prior to university (for example, TAFE, ACE, school).

Follow-up surveys can balance the limitations of information collected at enrolment time. However follow-up surveys also suffer the limitations of cost, low response rates, and the difficulty of contacting populations who tend to be very mobile.

The potential of institutional data collections to provide *longitudinal* information on student pathways has not been fully explored. In the short term, consideration could be given to linking key data items in different administrative collections. In the longer term, a student ID number that could be re-used by students enrolling in subsequent courses in any sector would greatly enhance the potential for mapping cross-sectoral movement. To be most useful, the common student ID number should be issued before the student leaves secondary school.

Institutional data collections are potentially valuable sources of information to researchers and policy-makers in investigating a range of policy issues. The great advantage of institutional data collections is that they are a census rather than a sample survey, and have the potential to record data on educational achievement. The modifications proposed in this report would improve the scope and usefulness of institutional data collections for monitoring cross-sectoral participation and movement between the sectors. Most of the modifications proposed aim to improve the consistency and quality of data collected in each sector. However the longitudinal tracking potential of institutional data collections is yet to be realised. There remains considerable scope to improve the use of institution-level data for longitudinal research.

A direction for policy and research is to explore the potential of institutional data collections to provide a longitudinal perspective on student pathways through mechanisms such as a unique student identifier portable across all sectors.

Summary

Recognising that the sector-based institutional data collections are a potentially valuable source of data on student transitions, the authors suggest that directions for future policy and research should:

- maximise the consistency of data fields in each institutional data collection and identify common data fields (based on agreed systems of classification) to be incorporated in the future
- develop a mechanism for reporting all forms of participation in education and training (both award and non-award) in each institutional data collection
- explore the potential of institutional data collections to provide a longitudinal perspective on student pathways through mechanisms such as a unique student identifier portable across all sectors

Feedback from respondents

The authors received 22 responses to the consultation paper, representing every sector of Australian education and training. The respondents are listed in appendix B. All but two of the respondents supported the broad aim of improving the potential of institutional data collections for monitoring student pathways between the sectors. Most respondents commented on the need to investigate issues such as the technical feasibility, political feasibility and cost-effectiveness of the proposed modifications. There was a high degree of consistency in terms of the issues identified as requiring further investigation. Where factual inaccuracies in the text of the report were identified, these have been amended. The main points which came through in the responses are summarised below.

1. Any modification to existing institutional data collections needs to be justified by reference to very clear benefits—what are these benefits, *who* are the beneficiaries, why are the changes desirable? This is a particularly important consideration in regard to modifying the AVETMIS Standard, which some respondents consider to be quite complex/onerous in its present form.
2. School systems currently collect more information than that provided for the NSSC and would be able to provide the NSSC with lower-level data.
3. The resource implications of major changes have to be addressed, particularly in relation to schools and ACE providers.
4. Boards of studies and universities admissions centre data should be explored as potential sources of national data on student pathways from post-compulsory schooling.
5. Tracking programs have privacy implications, and a unique portable student identifier could present special difficulties at the political level.
6. While some school systems are moving to establish unit-level data collections (or have already done so), the transition to an integrated national system would be likely to raise wider 'federal' issues of goal-setting, accountability and control, as well as resources.
7. Are changes to administrative systems really necessary, given existing survey programs (such as the ABS transition from education to work)? Could such surveys replace the potential for routine and high levels of disaggregation to target sub-groups which could be achieved through integrated administrative systems?
8. While changes to administrative systems to make them more compatible and also more useful for analytical (including tracking) purposes might be desirable, there are some serious issues of *coverage* currently affecting these systems (most notably in the ACE sector). The development of on-line enrolment systems may have the potential to improve response rates in some areas.
9. The potential of some existing administrative information systems for cross-sector tracking is limited by uneven coverage of activity (as in ACE), but also by the hierarchical nature of these collections; for example, personal details recorded by VET providers may

not be available to statewide or national agencies, or where such a facility has been established (as in Victoria)¹, it may not extend beyond that jurisdiction.

10. While there is scope for improving the data on student pathways in publicly funded institutions, there is a major gap in the information on privately funded education and training in all sectors. The scope for improving data on private provision should be investigated.
11. There is a need to standardise definitions across the sectors to ensure comparability of data collected in a cross-sectoral framework.
12. Improvements in data collection activities should be accompanied by better strategies to disseminate this information to policy-makers and practitioners in ways that these audiences find useful. High-quality data inputs will not be forthcoming from institutional collections unless the institutions and clients know that they will benefit in some way.
13. The National Education Performance Monitoring Taskforce (NPEM) is currently investigating alternative measures of Year 12 retention and other issues which should inform future developments in the collection of schools statistics.
14. The relevant MCEETYA taskforces and the National Education and Training Statistics Unit of the ABS are the preferred authorities to pursue these issues. These agencies should be guided by the overall purpose of measuring transition outcomes for the many different populations (including regional) who today depend on lifelong participation in education and training. Some concerns were expressed about the legal limitations on the release of data collected by the ABS. It needs to be clear whether these limitations would affect the ability of researchers and policy-makers to use any data collected.
15. Extensive consultations with all stakeholders in each State and Territory will be necessary.

¹ In 1999, the former Office of Training and Further Education (OTFE) in Victoria introduced a series of data elements to enable tracking to be carried out. These included Best Address (of client) Telephone No. (of client), First Name (of client), and Surname (of client). These were in addition to the Name for Encryption (introduced in 1994 for the purpose of longitudinal studies of participation). Other States may also hold this information.

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Appendix A: Information matrix

	SECTORS			
	Schools	VET	Higher ed.	ACE
Student characteristics				
Date of birth	No	Yes	Yes	Yes
Age	Yes	Yes	Yes	Yes
Gender	Yes	Yes	Yes	Yes
Indigenous	Yes	Yes	Yes	Yes
Home address (postcode)	No	Yes	Yes	Yes
Disability	No	Yes	Yes	Yes
Country of birth	No	Yes	Yes	Yes
Year arrived in Australia	No	No	Yes	No
Main language spoken at home	No	Yes	Yes	Yes
Labour force status	No	Yes	No	Yes
Institutional characteristics				
Type of institution	Yes	Yes	Yes	Yes
Address of institution (postcode)	No	Yes	Yes	Yes
Current course of study				
Full-time or part-time	Yes	Yes	Yes	Yes
Course/Year level	Yes	Yes	Yes	Yes
VET-accredited subjects	No	Yes	No	Yes
Work experience programs	No	n.a	n.a	n.a
Previous educational experience				
Highest level of schooling completed, year	n.a	Yes	Yes	Yes
Highest level of schooling attempted	No	No	No	No
Type of school/institution attended	No	No	No	No
Postcode of school/institution attended	No	No	No	No
Completed post-school qualifications	n.a	Yes	Yes	Yes
Highest post-school qualification attempted	n.a	No	No	No
Type of educational institution attended	n.a	No	No	No
Postcode of prior educational institution	n.a	No	No	No
Recent forms of educational participation	No	No	No	No
Basis of admission to current course	n.a	No	Yes	No

Notes:

This matrix is based on NSSC (schooling), National VET Provider Collection (VET and ACE) and Higher Education Statistics Collection (universities). It does not specify all the fields for which data are collected.

n.a = not applicable

Appendix B: List of respondents

Government agencies

State/Territory

ACT Board of Studies

Adult and Community Education and Education Access, Department of Education and Training, NSW

Department of Employment, Training and Industrial Relations, Queensland

Education Department of Western Australia

Education Queensland

NSW Dept of Education and Training

Office of Training and Adult Education, Dept of Education and Community Services, ACT

Office of Training and Employment, Western Australia

Office of Vocational Education and Training, Dept of Education, Tasmania

National

Australian Bureau of Statistics

Australian National Training Authority

Commonwealth Department of Education, Training and Youth Affairs

Other agencies and individuals

Australian Vice-Chancellors' Committee

National Centre for Vocational Education Research

Philip Hughes, Australian National University

Barry Golding, Bendigo Regional Institute of TAFE

Richard Curtain, Curtain Consulting

Gavin Moodie, Victoria University

Note:

A total of 22 responses were received because in several cases more than one individual within a government agency responded.



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